



Robert Mancini
Project Manager, Downstream
Chevron Environmental Management Company
1200 State Street
Perth Amboy, NJ 08861
Tel: (732) 738-2023
Fax: (732) 738-2039
RMancini@Chevron.com

December 12, 2019

Mr. Ricky Vargas
Land and Redevelopment Programs Branch,
Land, Chemicals, and Redevelopment Division
USEPA Region 2
290 Broadway, 25th Floor
New York, New York 10007

Re: Response to US EPA Comments, Dated July 26, 2019
Monitored Natural Attenuation Implementation Workplan, dated
September 28, 2018

Dear Mr. Vargas:

Please see the below response to USEPA Comments (dated July 26, 2019) regarding the Monitored Natural Attenuation Implementation Workplan (dated September 28, 2018).

General Comments:

1. The document repeatedly states throughout that, " ... benzene has been determined to be representative of the VOCs for the facility. As such benzene will be discussed in this document as an analog for all petroleum hydrocarbons VOCs present in the groundwater." We are concerned that an evaluation of MNA focused solely on benzene, may not be representative of true site conditions. A review of other site documents indicates that contaminants of concern (COCs) such as tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), vinyl chloride, total xylenes, toluene, ethylbenzene, cyclohexanes, 2,4-dimethylphenol, phenol, 2-methylnaphthalene, naphthalene, and volatile/semi-volatile organic compounds (VOC/SVOC) tentatively identified compounds (TICs), were detected where benzene was not, or where benzene was detected below the 2013 HSWA Permit Corrective Measure (CM) level of 100 ug/L. For example, Appendix Table A2-East Yard, denotes benzene concentrations at less than 2 ug/L in MW-155 in AOC 29 prior to 2012.

However, a review of other documents indicates that SVOCs were detected in replacement well MW-155R at concentrations up to 5,000 ug/L for naphthalene, at 570 ug/L for 2-methylnaphthalene, and 690 ug/LN for 2,4-dimethylphenol. Since MNA is to be final remedial action for groundwater at the site, it must be applicable to all COCs. The document should be revised provide a better understanding of groundwater contaminant concentrations for all VOCs and SVOCs which may or may not be addressed by MNA processes. The document should clarify locations (AOCs/SWMUs) where COCs not co-located with benzene may also be undergoing MNA, referencing what additional monitoring may be conducted in these areas.

Chevron Response:

Appendix A has been revised to report VOCs and SVOCs for all MWs for all three Yards at the Facility.

As stated in the 2008 CMS Report for the Facility, however, it was agreed to use benzene as the focus for remediation efforts. This is because benzene is known to be one of the most difficult VOCs for microbes to biodegrade, and thus evidence of its bioattenuation is a conservative indicator for all of the COCs at the Facility.

As mentioned in the above comment, there are a very large number of COCs found at the Facility. However, a detailed MNA evaluation for every one of them is not realistically achievable. Additionally:

- Groundwater is not used as a source for drinking water or water for other uses;
- There are no downgradient groundwater receptors;
- The perimeter monitoring wells are generally clean for most COCs;
- Downgradient groundwater perimeter monitoring wells are monitored regularly on a quarterly basis; and,
- There is a plan for regular, future monitoring of VOCs and SVOCs in groundwater.

As such, we feel that it is appropriate to continue following the plan outlined in the 2008 CMS Report where benzene is treated as the conservative indicator COC for the facility and thus remains the focus of work plans and reporting.

USEPA/NJDEP Comment:

2. Though Section 4.1 and subsequent subsections provide a summary of the historic distribution and changes in benzene concentrations for each Yard, the discussion appears to be focused solely on impacts to shallow groundwater and does not consider impacts to deeper groundwater. A further review of the groundwater data from this and other documents suggest that there are a number of deep groundwater wells that have VOC and SVOC impacts including but not limit to deep wells at SWMU 35 (MW-403), AOC 31 (multiple locations), and other AOCs/SWMUs. Though some deep well information (MW-403 historic data) is incorporated into the document, it is difficult to review as the data tables in Appendices A, B and C do not reference sample depth or differentiate between aquifer zones (shallow versus deep). We believe that a discussion of deep groundwater should be included in the MNA assessment as vertical plume migration and attenuation is as much of a concern as horizontal plume migration. A comparison of the information presented in Figure 4 (which list deep or shallow wells) to Appendix A, suggests that several deep wells were impacted by benzene and other COCs, including but not limited to: MW-246R, MW-250, MW-275, MW-283, MW-287, MW-293/293R, MW-178, MW-180, MW-184, MW-403, etc. Several of these wells were abandoned during CM activities, and since post CM data is not available, we are concerned that impacts to deep groundwater are ongoing.

Chevron should clarify if additional evaluation will occur at AOCs/SWMUs where impacts were noted in deep groundwater and including the wells listed above. Furthermore, based on a review of the Figure 4 and Appendix A, we find that no analytical data was provided for the following deep wells: MW-533, MW-513, MW-514, MW-515, MW-531, MW-531, MW-476, MW-500, MW-506, MW-525, MW-526. As such, it is unclear if additional evaluation is warranted at these AOCs/SWMUs in the deeper groundwater in regards to MNA. The document should be revised to provide additional discussion on the impacts to shallow and deep groundwater and propose additional monitoring as part of the MNA IWP for each. We also recommend that

additional figures, similar to Figures 8 through 10, be included in the revised document to aid in the evaluation of historic and current impacts to deep groundwater.

Chevron Response:

In regard to the monitoring wells listed in the first paragraph of this comment, all wells currently exist with the following two exceptions:

- MW-180, abandoned on 10/7/2003
- MW-184, abandoned on 2/10/2014

Please see Appendix A for current groundwater monitoring data on those MWs that are still currently in existence.

The purpose for focusing most of the attention on shallow groundwater is that this is where the majority of impacts are located. Not many impacts exist in deep groundwater, as evident in the data provided in Appendix A. The document has been revised, and the impacts to deep groundwater have been addressed in Section 4.1.1.

Of these deep monitoring wells, only one reported benzene concentrations above 1 µg/L. MW-333 reported a concentration of 18 µg/L on a sample taken on 4/16/19. This concentration is almost half of the reported concentration in this deep monitoring well in February 2018, suggesting that benzene attenuation is currently very active in this one stand-out monitoring well. This information is included in what has been added to Section 4.1.1 of the revised document. As such, Chevron does not feel the need for additional monitoring of deep wells to occur above current monitoring activities completed as part of other CMI remedial technologies. As AOCs/SWMUs are transitioned from active remediation (e.g. in-situ chemical oxidation [ISCO]) to MNA monitoring, deep wells in these areas will be incorporated into the MNA plan as appropriate.

Per Appendix C, MW-533, MW-513, MW-514, MW-515, MW-531, MW-531, MW-476, MW-500, MW-506, MW-525, and MW-526 are included in the proposed additional monitoring plan as part of the MNA IWP.

Because there is comparatively such small impacts occurring to the deep groundwater, there are no similar figures for the deep groundwater wells as for the shallow groundwater wells as depicted in Figures 8-10. However, we will take under advisement the above recommendation for such figures, for inclusion in future reports where deep groundwater is discussed.

Section Specific Responses:

USEPA/NJDEP Comment:

3. Section 4.1.2 Historic Decreases in Contaminant Concentrations Over Time, Central Yard, Page 12: The document states, "In the southern plume, near AOC 36...enhanced in-situ bioremediation (EISB) was conducted ... benzene concentrations have been reduced from greater than 100 ug/L..." However, a review of past documents indicates EISB was implemented to address chlorinated VOCs at AOC 36 which are the principal COCs in groundwater and not benzene. As noted above, the document should clarify what other COCs

will or won't be addressed by the MNA and include them in an evaluation of the organic contaminant load.

Chevron Response:

As stated above for General Comment 1, we understand that there are other COCs at the Facility other than benzene. However, it was agreed in the 2008 CMS Report to use benzene as the focus for remediation efforts. An examination of Appendix A clearly shows that benzene is by far the most common COC present. Additionally, benzene is known to be one of the most recalcitrant VOCs to biodegrade, and thus evidence of its bioattenuation is a conservative indicator for all of the COCs at the Facility. This is why benzene is a primary driver at this Facility and is why benzene is the focus of this report.

In the Central Yard, chlorinated VOCs such as PCE, TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride are found. However, EISB has been performed to help facilitate the removal of chlorinated compounds. An assessment of concentrations in Appendix A shows clear downward trends for these COCs in the Central Yard. Fluctuations in concentrations are going to be expected, however, as PCE naturally biodegrades to daughter products that include TCE, the DCE isomers, and vinyl chloride. Through either MNA or enhanced dechlorination EISB activities, these daughter products will subsequently also continue to dechlorinate. This biological bioattenuation process is well understood, especially for these particular compounds, which are also very amenable to biological dechlorination. This process is being monitored in the CY, and these EISB (and monitoring) activities were recently reported in detail in the following report that was submitted to the US EPA in September 2019: Discharge to Groundwater / Permit By Rule Monitoring Report for Enhanced In Situ Bioremediation (EISB) Area of Concern 36, MW-216/MW-220 and MW-367 Areas.

As added to Section 4.1.2 of the document, a detailed assessment of all additional site COCs, including which additional COCs will or won't be addressed by MNA, is beyond the scope of this report. The primary driver at this location is benzene. Additionally, other than the above-mentioned chlorinated compounds, there is not a significant volume of other COCs over the course of the Facility. As such, any additional COCs do not contribute substantially to the overall organic contaminant load for the Facility.

USEPA/NJDEP Comment:

4. Section 4.1.2 Historic Decreases in Contaminant Concentrations Over Time, Main Yard, Page 12: The document states, "Currently, only three of these areas have groundwater concentrations over 1,000 ug/L, and nine areas have benzene concentrations above the CMI action limit of 100 ug/L." The document should be revised to clarify the AOCs/SWMUs where benzene was detected over the CMI action level.

Chevron Response:

The following AOCs/SWMUs have reported benzene detected above the CMI action level based on the latest 2018/2019 available sampling data:

Central Yard

- AOC 25
- AOC 36
- SWMU 11B

East Yard

- EY4b
- AOC 31
- AOC 37
- AOC 31

Main Yard

- SWMU 43
- SWMU 6
- SWMU 16
- SWMU 39
- AOC 9A
- AOC 50

Section 4.1.2 of the document has been modified to include this information.

USEPA/NJDEP Comment:

5. Section 4.1.2 Historic Decreases in Contaminant Concentrations Over Time, Main Yard, Page 12: The document states, "The "Main Yard Plume" includes a large commingled plume, which extends from SWMU 5/21/43 in the northwest to AOC 15/8 in the southeast." However, we find that this section is lacking in detailed information about all AOCs/SWMUs that have been remediated within this larger plume, specifically AOC 23/41 and SWMU 18. We acknowledge that recent remedial activities associated with or near AOC 23/41 and SWMU 18 may have greatly improved the groundwater quality in this area. However, a review of Figure 8 (detailing 2008) and Figure 9 (detailing 2017/2018) suggest that many of the monitoring wells abandoned during implementation of the CM have not been replaced, as such that there is limited data to support the representation of improved groundwater quality in Figure 9. Figure 8 depicts numerous wells near AOC 23/41 and SWMU 18 where benzene was detected above 10 ug/L including two wells where benzene was detected above 1,000 ug/l (MW-117 and MW-260). However, only one well remains (MW-263) in this area at a distance from the area of greatest impacts. Please clarify if post remedial groundwater sampling will be or has been conducted in the area near former wells MW-117 and MW-260 to confirm improvement of water quality in this area as depicted on Figure 9 in the Main Yard.

Chevron Response:

An ISS/ESS IWP for SWMU 18 and AOC 23/41 was submitted to the USEPA and NJDEP in February 2017. In this document, Chevron proposed to remediate the benzene-impacted soils in this area, along with the ISS/ESS CM. The proposed CMs included the excavation of soils with benzene impacts above the CMI action level and disposing of the soils in the on-site Corrective Action Management Unit (CAMU). The proposed CM was implemented between March 2017 and April 2018. Benzene impacts in groundwater were not directly addressed in the February 2017 IWP.

Five of the SWMU 18 and AOC 23/41 monitoring wells (MW-117, MW-238, MW-260, MW-261, and MW-267) were abandoned to facilitate the proposed CMI. These monitoring wells were re-

installed after the CMI was completed. However, in concurrence with NJDEP's recommendation, Chevron:

- Relocated the deep monitoring well MW-238R (as well as the shallow monitoring well MW-117) in the vicinity of soil boring S0765 to assess impacts (if any) in the lower aquifer;
- MW-117 was reinstalled as MW-551; and
- MW-238 was reinstalled as MW-550.

The post-excavation monitoring program has involved the collection of groundwater samples from six monitoring wells (MW-260R, MW-261R, MW-267R, MW-273, MW-550, and MW-551) on a quarterly basis. The samples are analyzed for TCL VOCs+TICs and TCL SVOCs+TICs. Baseline data was collected prior to the CMI.

Baseline results indicated that benzene was above the CMI action level in monitoring wells MW-117 (concentrations ranging from 470 to 1,900J ug/L), MW-260 (concentrations ranging from 13,000 to 15,000 ug/L), and MW-261 (concentrations ranging from 140 to 350 ug/L). Benzene was detected below the CMI action level in monitoring wells MW-267 (concentrations ranging from non-detect to 2 ug/L) and MW-238 (benzene was non-detect in both baseline sampling events).

Post-implementation groundwater sampling was conducted at these monitoring wells in November 2018, February 2019, and May 2019. Benzene is now below the CMI action level in monitoring well MW-261R (concentrations ranging from 7 to 8 ug/L) and remains below the CMI action level in monitoring wells MW-267R (concentrations ranging from non-detect to 2 ug/L) and MW-550 (concentrations have all been non-detect for benzene). Benzene concentrations have decreased, but still remain above the CMI action level at monitoring wells MW-260R (concentrations ranging from 6,500J to 10,000J ug/L), MW-273 (concentrations ranging from 260 to 280 ug/L), and MW-551 (concentrations ranging from 150J to 230J ug/L).

A CCR for the SWMU 18 and AOC 23/41 excavation CM will be submitted in 1st quarter 2020, along with an additional IWP to address the benzene-impacted groundwater around monitoring wells MW-260R and MW-551.

A CM IWP for SWMU 17 was submitted to the USEPA and NJDEP in February 2019. The proposed CMs included ex-situ stabilization (ESS) to address lead and tetraethyl lead (TEL) impacts in soil and excavation to address benzene impacts in soil and groundwater. The CMs were implemented between March 6 and March 29, 2019.

Monitoring well MW-273 was abandoned to facilitate the CMI and was reinstalled as MW-273R in May 2019. As part of the SWMU 17 performance groundwater monitoring, groundwater samples will be collected from monitoring well MW-273R and analyzed for VOCs on a quarterly basis for approximately two years. Baseline data was collected prior to the CMI. Baseline results indicated that benzene was above the CMI action level in monitoring well MW-273 with concentrations ranging from 260 to 1,000 ug/L.

To date, only one round of post-implementation groundwater sampling has been conducted at MW-273R in August 2019. Unvalidated results indicate a benzene concentration of 330 ug/L. A CCR for the SWMU 17 ESS and excavation CMs will be submitted in 1st quarter 2020.

USEPA/NJDEP Comment:

6. Section 4.3.1 MNA Parameters: Data Assessment, Central Yard, Page 18: The document states, "Sulfate concentrations were reported to be between 38,700 and 54,000 ug/L..." for MW-360 a "periphery monitor well". The document further states, "The cause of the consistently-elevated sulfate concentrations in MW-360 is unclear." Please note, we were unable to find the corresponding data set for MW-360 to further evaluated this statement. Regardless, the document should clarify, what, if any, additional remedial actions have been conducted in in this area (or in adjacent AOCs/SWMUs) that could be the cause, and what, if any, long-term impacts this may have on MNA in this area.

Chevron Response:

The area around MW-360 borders the property line, and thus information about what may have occurred on the other side of the property line is unavailable. However, it is known that the AOC 25 area was originally an LNAPL area. It was believed that the benzene in groundwater may have been from leaks in the facility oily water sewer. Groundwater sampling identified benzene concentrations to be just above 100 ug/L, but the area was not ideal for ISCO. It was ultimately proposed to excavate potential source material to remediate groundwater. Excavations occurred in late 2016. Details of this work can be found in the Area of Concern 25 Implementation Work Plan and the Area of Concern 25 Construction Completion Report, which were submitted to EPA in August 2016 and January 2019, respectively.

The information in this response has been added to Section 4.3.1 of the document

USEPA/NJDEP Comment:

7. Section 4.3.1 MNA Parameters: Data Assessment, Central Yard, Page 19: The document references that MNA was already evaluated as a remedial approach for AOC 36, and that additional information can be found in other documents. This document should be revised to also include the above referenced information, specifically as it relates to impacts to MNA due to the presence of chlorinated VOCs (CVOCs) as part of the organic contaminant load at AOC 36, and for other AOCs/SWMUs. Furthermore, a discussion of AOC 36 should also reference impacts on MNA (if any) due to the placement of the Laddertrack Rail System which includes a capping system and a spill/discharge collection component which limits infiltration in this area.

Chevron Response:

The purpose of this Monitored Natural Attenuation Implementation Workplan is to discuss the status of overall MNA across the entire Facility using benzene as the focus of the remediation efforts, and not to focus on any particular AOC other than when providing examples. The topic of AOC 36 is specifically addressed in the above-referenced Discharge to Groundwater / Permit By Rule Monitoring Report for Enhanced In Situ Bioremediation (EISB) Area of Concern 36, MW-216/MW-220 and MW-367 Areas, submitted to US EPA in September 2019. As such, we disagree that the Monitored Natural Attenuation Implementation Workplan should be revised to

discuss the topic of AOC 36 in any more detail than already provided. However, the AOC 36 – specific document will be referenced within the document, as seen in Section 4.3.1.

In regard to the contribution of chlorinated VOCs (CVOCs) to the total organic contaminant load, please refer to the response to Section Specific Comment 3.

In regard to the Laddertrack Rail System, the cap largely consists of permeable material and this does not impact MNA.

USEPA/NJDEP Comment:

8. Section 4.3.1 MNA Parameters: Data Assessment, East Yard, Page 20: The document states, "The East Yard also experiences possible tidal influences, since the eastern boundary is the Arthur Kill." The document should clarify the phrase "possible tidal influences". Furthermore, since tidal influences could be associated with deteriorated bulkheads, we recommend a bulkhead integrity assessment be conducted.

Chevron Response:

We suspect that there may be some limited tidal influences on the groundwater in the East Yard, but these possible tidal influences have not been quantified. Tidal studies performed in SWMU 8 and in the area surrounding the former East Yard Basin showed tidal fluctuations in the Arthur Kill had little to no influence on groundwater elevations in the East Yard. This limited tidal influence in the East Yard is attributed to the bulkheads that have been placed along the Arthur Kill.

Comparison of the general groundwater elevation ranges in the East Yard to the mean high-water elevation observed in the Arthur Kill shows that even at high tide, the groundwater elevation in the East Yard are generally higher than the surface water elevation in the Arthur Kill. This means that even at high tide, groundwater in the East Yard flows to the east towards the Arthur Kill. The groundwater flow gradient will be flatter during high tide than it will be at low tide indicating some possible tidal influences, however, there is no reversal of groundwater flow direction during high tide. This has been clarified and stated in Section 4.3.3.

In regard to the recommendation for a bulkhead integrity assessment, the bulkheads are present for structural assistance only, to facilitate marine vessels docking at the site. The bulkheads are not part of a water control program nor are they present for any groundwater remediation purposes. Therefore, Chevron does not plan to perform a bulkhead assessment.

USEPA/NJDEP Comment:

9. Section 4.4.2 Average Biodegradation Rates for COCs Documented in Numerous Case Studies, Page 23: The document indicates that there are "several factors that can significantly impact the rate of biodegradation for any particular hydrocarbon, including... the presence of other, non-hydrocarbon co- contaminants." However, the document does not address these other co-contaminants. The document should be revised to provide a discussion on all COCs including VOC and SVOC TICs.

Chevron Response:

Please refer to the response to General Comment 1.

USEPA/NJDEP Comment:

10. Section 4.4.4 In-situ Microcosms (Bio-Traps®), Page 24: The document states that the beads will be "baited" with an isotopically labeled target compound (benzene)". Please clarify if the beads will be "baited" with a similar concentration of benzene to what has already been detected in the groundwater where this will be implemented.

Chevron Response:

The beads were baited with isotopically labeled benzene at a concentration of approximately 113 ug/bead. This is the reporting value and unit of measure provided by the lab. During the manufacturing process, the laboratory doses the beads with a standard concentration of benzene. Thus, this dosing concentration is an artifact of standard manufacturing processes and is not based on any particular location where the samplers will be used.

USEPA/NJDEP Comment:

11. Section 4.4.4 Quant-Array (Petroleum) Analysis, Page 26: The document states this analysis looks at "22 genes... that are associated with a variety of aerobic and anaerobic benzene-degradation pathways." However, it is also suggested that bioattenuation of other compounds may be complimentary to or in competition with benzene-specific bioattenuation. The document should be revised to clarify this statement. Regardless, this statement further our concerns regarding the limiting this MNA evaluation solely to benzene. As such, we recommend as part of the MNA process monitoring that, at a minimum, full organic analyses (VOC+TICs, SVOC+TICs) be included in the evaluation, where appropriate such as at AOC 36.

Chevron Response:

The concept of how biodegrading microbes may preferably attenuate certain site contaminants before or in tandem with other contaminants is detailed significantly in the literature. A discussion about this topic, in regard to the BTEX hydrocarbons, was included in Section 4.4.2 of the report. Any further discussion on this very broad topic is beyond the scope of this report, particularly in light of the fact that benzene is the COC used to monitor this Facility, as decided in the 2008 CMS Report. Please refer to the response for General Comment 1, in regard to the use of benzene as a conservative indicator compound for this Facility.

Please refer to Appendix A, which has been revised and now does report VOC+TICs and SVOC+TICs. Please refer to the responses to Section Specific Comments 3 and 7, in regard to any additional discussion on AOC 36.

USEPA/NJDEP Comment:

12. Section 5.3 Institutional Controls, Page 31 and Table 1, GWQS: The document states, "The facility is in a Class-IIA aquifer and groundwater quality standards (GWQS) are summarized in Table 1. Table 1 denotes that the GWQS were last amended in January 16, 2018. However, further review of the table indicates that 1,4-dioxane among other COCs was not included. Please confirm that Table 1 GWQS is complete and up-to-date.

Chevron Response:

Table 1, GWQSs has been updated and is complete.

USEPA/NJDEP Comment:

13. Section 6.1 Data Gaps, Page 32: The document states, "Some of these identified data gaps can be addressed while CM activities are occurring; however, others will need to wait until

CM implementation completion has been achieved." In addition to the data gaps referenced in this section, we also believe that additional evaluation of certain site conditions which may influence MNA processes are also warranted, including but not limited to: impacts as a result of EISB treatment, impacts or change in site conditions due to the installation of the Permeable Reactive Barrier SWMU 34 or similar site disturbances, excavations and in-situ stabilization (ISS) activities; changes in surface cover, or installation of structures that limit infiltration and groundwater flow (i.e. Ladder Track Rail System, bulkheads, cover systems), etc. The document should be revised to include additional discussion on data gaps and site activities/structures that may or change inhibit the flow of groundwater and surface infiltration.

Chevron Response:

There are no new structures currently planned for installation. Planned cover systems/caps are/will be permeable with the exception of the cap at SWMU 43 which is currently being designed. As such, we do not plan to add any comments to the document on this topic. Additionally, recent monitoring has captured groundwater flow and infiltration information. However, when conditions at the site are changed, such as if a new liner is added, additional and targeted monitoring is conducted to look at possible impacts on groundwater flow and infiltration as was performed following the liner installation in AOC 45/46. Finally, please note that Facility Alteration Notifications include an assessment of how the alteration will impact remediation in the affected area.

USEPA/NJDEP Comment:

14. Section 6.2 Performance Monitoring, Page 33, and Appendix C: The document states, "Groundwater monitoring will continue to be conducted to determine the concentrations and distribution of contaminants, geochemical parameters, and MNA related parameters (e.g., alkalinity, pH ORP, sulfides, dissolved iron, total iron, DO, and nitrates)." However, Appendix C suggests that only VOCs will be included in this process monitoring. We recommend, at a minimum, that the baseline sampling be more extensive and include VOC+TICs and SVOC+TICs. Future sampling may include a reduced list of based on the information collected in baseline sampling. In addition, please clarify why sulfates were not included in the list of MNA related parameters and incorporate as necessary.

Chevron Response:

Appendix C1 has been revised such that VOCs+TICs and SVOCs+TICs are included. And Section 6.2 of the text has also been appropriately updated.

In regard to sulfate, the MNA-related parameters listed in this sentence was not anticipated to be interpreted as all-inclusive. However, this sentence in Section 6.2 has been revised to include sulfate within the specific list provided.

USEPA/NJDEP Comment:

15. Section 6.2 Performance Monitoring, Page 33: The document states, "This will make data evaluations more accurate by eliminating variables such as... disturbances due to high purge rates used for other COCs." Please clarify this statement and if sampling for MNA parameters will be collected via the low flow sampling method that is typically used for inorganics.

Chevron Response:

As per the NJDEP Field Sampling Procedures Manual, inorganic MNA parameters (TAL Metals and ferrous iron) will be collected via low flow sampling. Other MNA parameters (nitrate, nitrite,

sulfate, sulfide, methane, ethane, TKN, phosphorus, TOC) will be collected with a bottom-fill Teflon bailer after a 3-volume purge. This was clarified in Section 6.2.

USEPA/NJDEP Comment:

16. Section 6.3 MNA Corrective Measures Completion, Page 35: The document states, "An NFA request will be made when an area has maintained benzene concentrations under 1 ug/L for four consecutive sampling events." As noted above, other COCs need to be evaluated and confirmed to be below all applicable GWQS before we will consider no further action regarding MNA at the site.

Chevron Response:

We acknowledge this comment.

USEPA/NJDEP Comment:

17. Section 7.2 Documentation Requirements, Page 36: The document indicates that the CM progress report will contain information specific to MNA sampling events. However, we were unable to locate the "groundwater sampling form" referenced in the Field Sampling and Analysis Plan (FSAP). To properly evaluate MNA and associated groundwater analytical data, we request that all information necessary to evaluate the sample data set be included in the progress reports, including but not limited to: water level measurements before/during/after purge and prior to sampling; purge rate (start and end time); and sample start and end times. Please note, we find this information necessary to interpret any potential well purge/recovery issues which may impact data collected.

Chevron Response:

This information will be available on the groundwater monitoring forms that will be compiled and provided with future CM Progress Reports.

USEPA/NJDEP Comment:

18. Appendix A, B and C Tables: We have evaluated Appendices A, B and C and notes the following:

a. Appendix A tables should be revised at a minimum to include VOC TICs, if available. Furthermore, SVOC and SVOC TICs should also be included for the subset of well locations where the data indicates SVOC impacts.

Chevron Response:

Appendix A tables have been revised to include VOC TICs, when available. These revised tables also include SVOC and SVOC TICs.

b. Appendix C tables should be revised to include a more comprehensive baseline sampling set including: VOC TICs and SVOC and SVOC TICs, where applicable. Subsequent long-term monitoring can be modified based on data collected during baseline sampling.

Chevron Response:

Appendix C tables have been revised.

c. Appendix C table for the East Yard should be revised to include MNA process monitoring at MW-155R for SVOC+TICs.

Chevron Response:

MW-155R has been added to the Appendix C1 table, and the proposed monitoring process includes SVOCs+TICs.

d. The tables in Appendix A, B and C should be revised to reference the aquifer zone that the well monitors (shallow or deep), and the SMWU/AOC designation.

Chevron Response:

We appreciate that knowing if a monitoring well is associated with the shallow or deep aquifer zone is helpful information to have. Due to the very large size of the Appendix A and Appendix B tables, it became a significant challenge to add this information to these tables. However, within Appendix C, we have created a new table with this information. Table C2 contains a summary of the well construction reports for Facility monitoring wells.

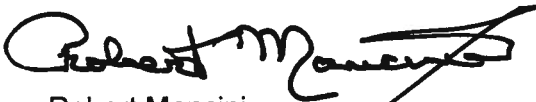
e. Finally, the document, should be revised to include a well construction summary table for any wells referenced in Appendices A, B or C that will be used to evaluate MNA at the site.

Chevron Response:

Within Appendix C we have created a new table. Table C2 contains a summary of the well construction reports for Facility monitoring wells.

If you require additional information regarding our responses, please contact me at (732) 738-2023. Otherwise, Chevron looks forward to receiving your concurrence with the responses provided in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Mancini", with a long horizontal stroke extending to the right.

Robert Mancini
Project Manager, Downstream

cc: Mr. Charlie Zielinski, NJDEP
Mr. Brendan Leehan, Buckeye

Mr. Ricky Vargas
December 12, 2019
Page 13

bcc: Ken Siet - TRC
Todd Frantz – Parsons

D-ID Number 2019-072-44